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The design of the guest application system must report in RT 03 RW 04 appears website-based with the extreme programing method

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Website,
Extreme Programming

ABSTRACT
RT stands for "Rukun Tetangga" which is led by a "Ketua RT". The head of a RT is an individual elected by residents in a residential area, who has the responsibility to lead and manage activities and daily affairs within the RT area. RT areas have regulations that have long been implemented, namely guests who are not local residents have an obligation to report to the RT office within 1 x 24 hours during their visit to enter an area. This is done to provide a sense of security and order in the surrounding environment. However, these regulations often do not work as they should. So, to facilitate practice, research to design and build a web-based mandatory reporting guest application system was carried out. This website is designed to make it easier for guests to report when entering the RT.03 area without having to go to the RT head's office. The Extreme Programming (XP) method is used in making this website because the software development method is fast, efficient, low risk, flexible, predictable, scientific, and fun. The stages that need to be followed in building a mandatory guest reporting system with the XP method are planning, designing, coding, and system testing. From the results of this study, it can be concluded that the mandatory guest reporting system is very effective in helping to facilitate the guest labor process and also the data collection of guests who come.

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INTRODUCTION

RT (Rukun Neighbor) is an association of several heads of families or KK in each village/kelurahan and is led by an RT leader. The head of RT has the authority to maintain the safety of the surrounding environment, one of which is by implementing mandatory guest reporting regulations. This regulation requires visiting guests to report their arrival to the head of the RT. This regulation aims to prevent or minimize the occurrence of unwanted things, such as immoral acts, acts of theft, entry of dangerous foreigners or terrorists and other things that endanger the local population.

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At this time, this reporting activity is carried out by providing visit information and proof of personal data directly at the house of the chairman of the RT chairman in physical form, and data recording is still carried out conventionally by writing visit data in the RT report book, so that it is vulnerable to recording errors and the possibility of lost or unrecorded files is still quite large. And there is also a possibility that if the RT chairman is not in place, it will hamper the reporting process.

Therefore, the solution that can be offered is to design and build *a website* for guests to report activities. This application is web-based so it can be accessed easily at any time. Features that will be available in this web-based mandatory guest report system include; Guests can do the report process by filling in their personal data online through the web provided at any time without the need to go to the RT chairman to submit personal data information and carry out a data recording process that is quite time-consuming, the RT chairman and his staff will have an account that can be used to access *the database* of results from guest visit reports so that the performance of the RT chairman and his staff becomes more efficient because there is no need to record manually In the RT report book, data and reports from visiting guests will be recorded automatically in the mandatory report web *database* and can be accessed easily by the RT chairman and staff without the need to search for data records in stacks of files or RT report books and data can also be downloaded at any time when needed. With this application, it is hoped that it will make the guest report process easier and help RT staff performance become more efficient.

The Extreme Programming *method* or abbreviated as XP will be used in this study. The XP method is a software development method that belongs to the *agile* approach model introduced by *Kent Back* using an *object-oriented approach*. The stages that must be passed in the XP method are *planning,* design*, coding*, and *testing* . According to (Rizal, Ahmad, Damayanti, Aftirah, &; Lestari, 2022) the *Extreme Programming* method was chosen because the system development is faster and very flexible with changes that occur in the software development process.

METHODS

System Development Methods

In this study the system development method used is Extreme Programming (XP), a model included in the agile approach introduced by Kent Back. Extreme Programming was chosen because the system to be made is not too complex and classified as small-scale software and also requires a development time that is not too long. The Agile Extreme Programming model includes several rules in practice consisting of *planning, design, coding, testing* and *software increment.*

Analyzes Sistem

System analysis is a problem-solving technique by breaking down problems in a system into smaller components to make it easier for us to understand the problem. As well as identifying and evaluating problems and constraints that occur to get the expected needs of a system so that improvements can be proposed.

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Current System Analysis

The reporting system that must be carried out by guests visiting the RT.03 Muncul area is currently carried out by visiting the residence of the RT chairman. Then guests provide personal data information according to ID cards, the homes of residents who want to go to, and the duration of the visit. Where guests must provide a *copy of* their ID card to the head of the RT and the data is recorded by handwriting in the RT notebook. So that it is prone to data recording errors, the possibility of missing files or data not being recorded is quite large, and there is a possibility that the head of the RT cannot Encountered thus hampering the reporting process. Here is an *activity diagram* of the current system:

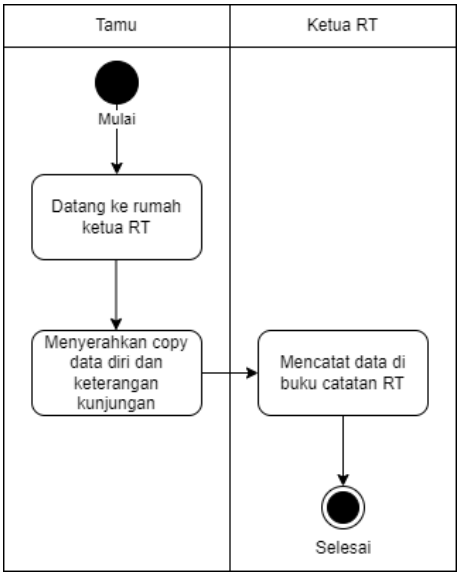
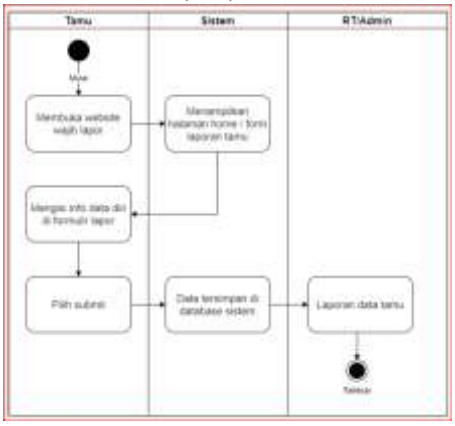


Figure 1. Running System Activity Diagram

Proposal System Analysis

After analysis of the running system, the researcher has a suggestion that later guests who want to visit RT.03 Muncul can process reports in *real time* without having to come to the house of the RT chairman. In a way, guests can carry out the reporting process by accessing the *mandatory reporting website* that will be made. Here is the Activity diagram of the system that the researcher proposes:



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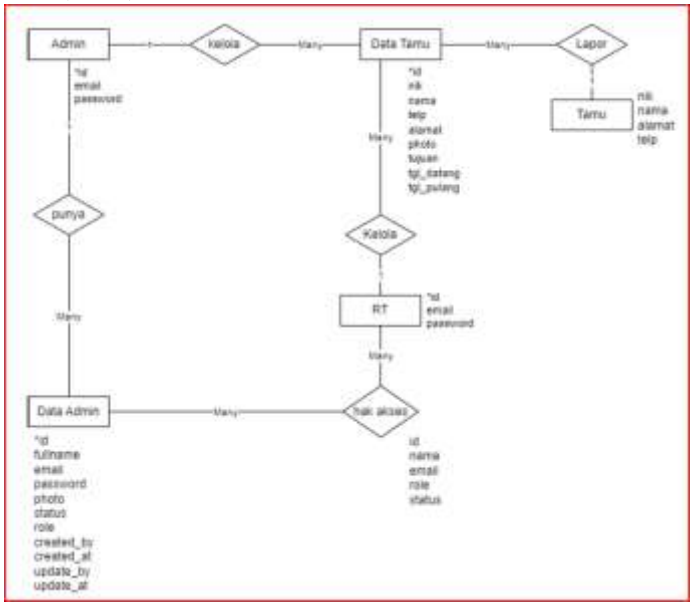
Database *Planning*

The next stage of this research method is database design. Database design is the design that will be used in making this web application system.

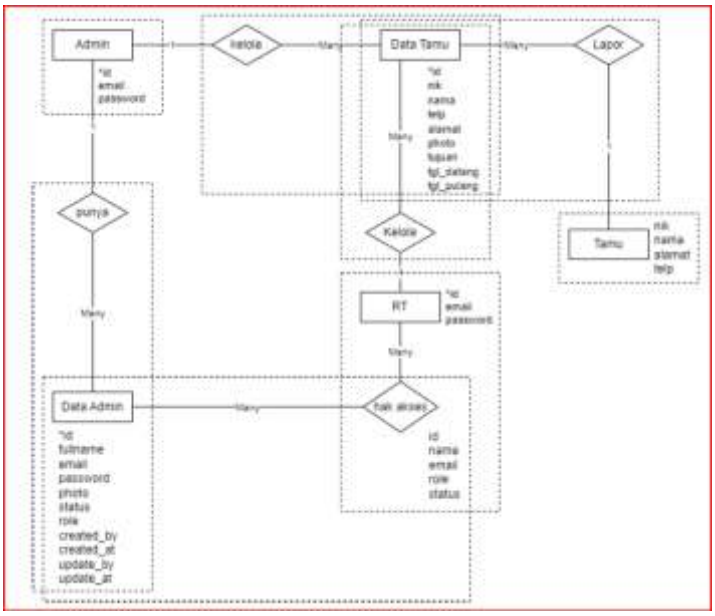
Entity Relation Diagram (ERD)



Gambar 2. *Entity Relation Diagram* (ERD)

The picture above explains the form of relationships between tables in the database of guest websites must report in the form of entity relation diagrams (ERD). This relationship diagram illustrates the flow of relationships between tables that occur on the *website* created.

ERD to LRS transformation



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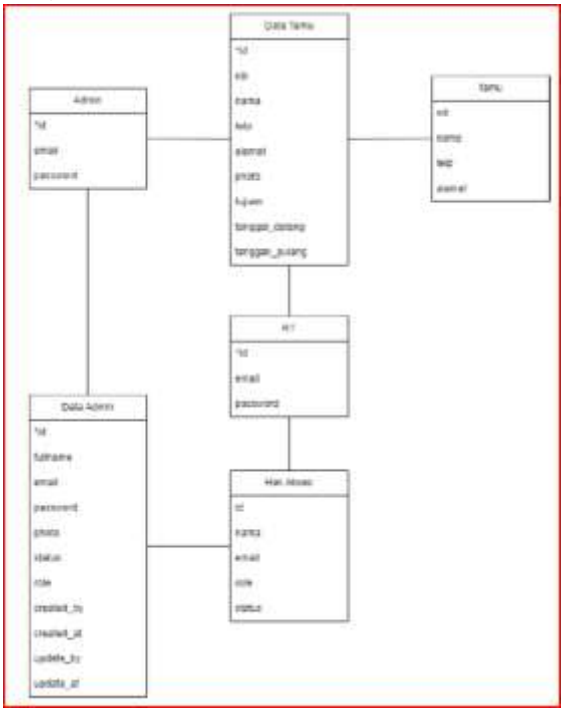
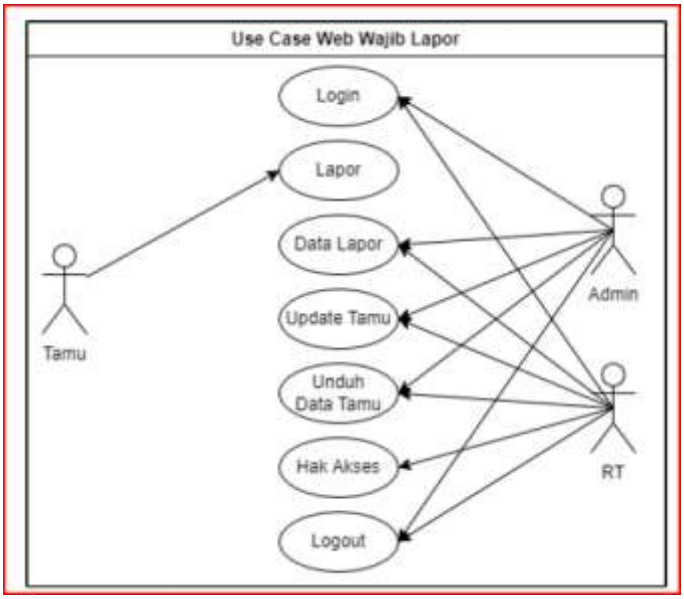
The picture above is an interconnected entity from the guest entity to the reporting process, guest data processing by the admin, and access rights from the RT chairman in the form of ERD and transformed into LRS form.

Logical Record Structure **(LRS)**



Logical Record Structure (LRS) is formed by a number of *record* types. Some types of records are represented by rectangular boxes with unique names. LRS also consists of relationships between *record types*.

Use Case Diagram



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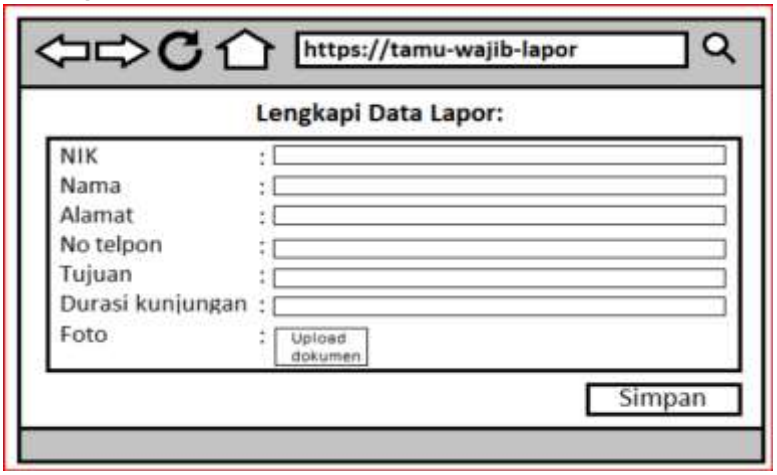
Use case diagrams are modeling for the *website* to be created. *Use case* describes an interaction between one or more actors with the system to be created. The image below describes the reporting process carried out through the *web* that will be created.

User Interface *(UI)* Planning



This page is the page that will appear after the guest selects the "guests" menu that appears on *the homepage* to carry out the reporting process. On this page, guests will fill out a report form according to the guest's personal data, the intended resident's house, the duration of the visit, and the guest's self-photo. After all data is completed, the guest will press the "save" button to complete the reporting process.

RESULTS AND DISCUSSION

Interface Implementation

The system interface is a service available on the operating system as a means of interaction between the user and the operating system. Interfaces are operating system components that interact directly with users. Here is a direct implementation with users. Here is the implementation of the interface that has been created:

Home/Report Page

Figure 3 Home/Report Page

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The *home/report* page is the first page that appears when the web must be accessed. On this page, guests can do the report process by filling out the form according to the required data.

1. Login Page

The *login* page is the page used by admins and RTs. It is necessary to verify whether the account has been registered to the system or not by ensuring the *username* and *password* are correct before being able to access the dashboard page.

Gambar 4 Halaman Login

2. Admin Dashboard page

Gambar 5 Halaman Dashboard Admin

The admin *dashboard* page is the page that will appear first after the admin has successfully logged in. *The admin dashboard* will display data information on the number of guests logged in per day, per week and per month.

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3. Report Guest Data page

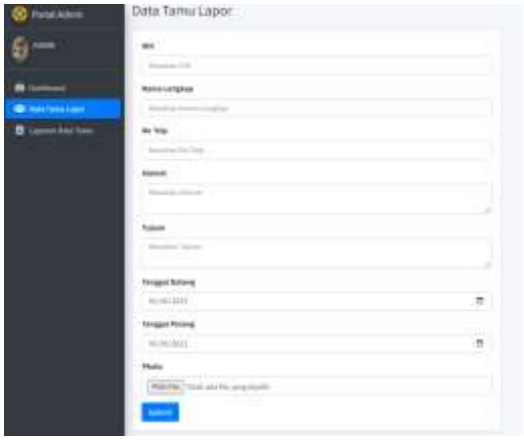
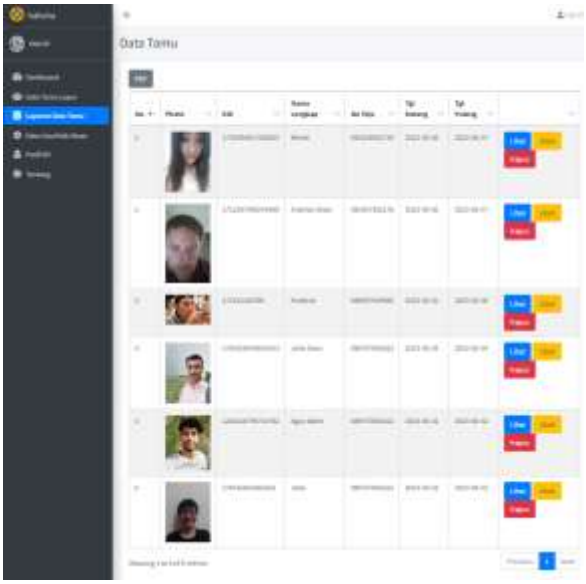


Figure 6 Report Guest Data Pages

The report guest data page is a page that serves to add guests. This page is used if there are guests who come, but cannot do the report process, so the data will be inputted by the admin. The data that needs to be inputted is the same as the data needed when the guest reports independently.

Guest Data Report Page



Gambar 7 Halaman Laporan ata Tamu

This page will contain guest data that has already carried out the reporting process. On this page too, admins can see more detailed data details and update and delete existing data.

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4. User Data/Access Rights Page

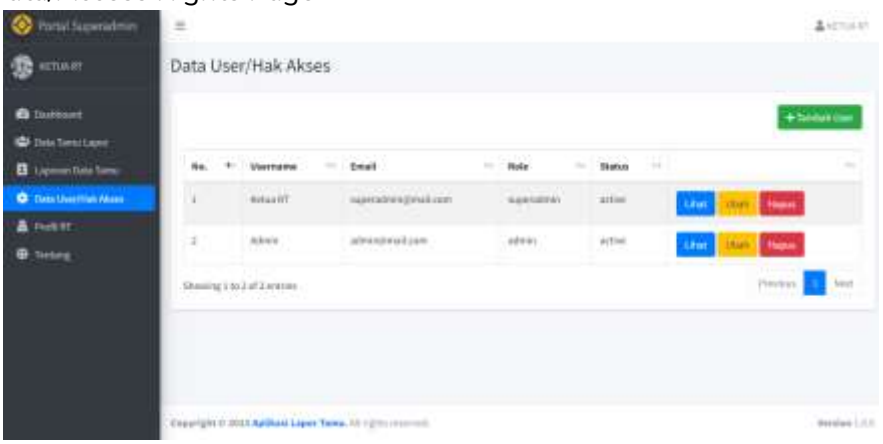

Figure 8 User Data/Access Rights page

User data / access rights page is a page that serves to display information about the list of users or access rights including, name, email, role, status, and CRUD menu to add, remove, or change access rights of a user.

Halaman Profile RT

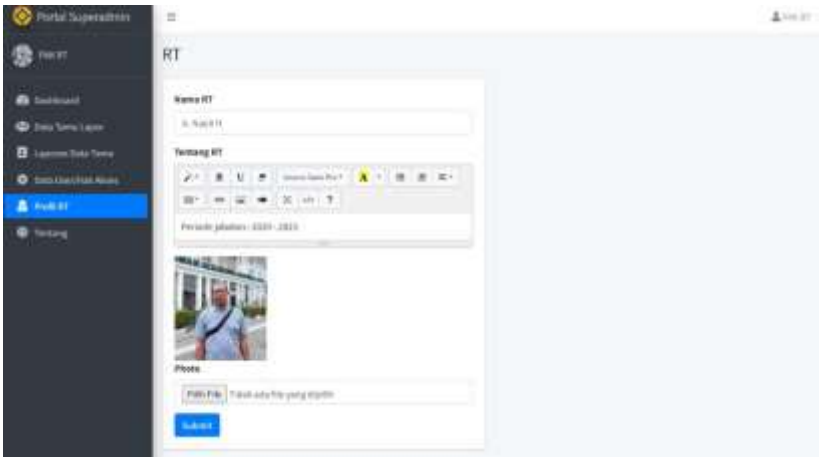

Figure 10 RT Profile Page

This page is a page that can be used by the head of RT to update data which later this information will be displayed in the RT Profile menu which can be accessed at home.

System Testing

System testing is a planned activity to test the correctness and find out where errors are in the system. Testing is carried out to find out whether the software that has been created meets the criteria that are in accordance with the purpose for which it was designed.

Black Box Testing

Black box testing is an activity to test the usability and functionality of an application. Black box testing focuses on the needs, features, appearance and specifications of the program according to the client's request.

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Table 1 Test plan

Unit yang Diuji	Jenis Pengujian
Halaman Home/Lapor	*Black Box Testing*
Halaman Login	*Black Box Testing*
Halaman Data Tamu	*Black Box Testing*
Halaman Laporan Data Tamu	*Black Box Testing*
Halaman Data User/Hak Akses	*Black Box Testing*
Halaman Profil RT	*Black Box Testing*

1. Home Page Testing/Report
   a. Test Scenarios Applied Results Conclusion
      Enter personal data in full, then click "Submit" Data successfully submitted and entered the database, and *system* displays a "Successful insert data" notification Valid
   b. The personal data entered is incomplete, then click "Submit" The system will display a notification to fill in the empty fields. Valid
2. Login Page Testing
   a. Enter the username, and password correctly, then click "Sign In" The system will receive access and redirect to the dashboard page.
   b. Enter username and password with incorrect data. The system will display a "login failed" notification
3. Guest Data Page Testing
   a. Add guest data by filling out the form completely. The system displays a "successful insert data" notification
   b. Entering incomplete guest visit data The system displays a notification to complete the empty fild.
4. Testing the Guest Data Report Page
   a. The admin presses the "view" button to display the details of the guest data. The system will display the selected guest data with more detailed information.
   b. The admin presses the "Change" button to update the guest data. Guest personal data will appear that can be updated by the admin.
   c. Admin presses the "Delete" button A notification will appear to verify the process of deleting data.
5. Testing User Data/Access Rights Pages
   a. RT pressing the "Add User" button A form will appear to add a new user.
   b. RT pressing the "View" button The system will display more detailed information about the selected user.
   c. RT pressing the "Change" button A form will appear to change the data of the selected user.

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d. RT guesses the "Delete" button A notification will appear to verify the user's deletion.
e. RT presses "OK" on the user data deletion confirmation pop-up.
f. User data selected for deletion will disappear from the database.

CONCLUSION

Based on the results of the analysis and design of the system built, it can be The following conclusions are drawn: With the completion of the website system design, guests must report with The extreme programming method can simplify the reporting process without Require guests to perform conventional data recording processes in the office of the RT chairman, thus making the performance of RT staff more efficient. With the guest website system, data recording is required Guests become easier and more organized because data is recorded Automatic in the website database after the guest reports. The website created can reduce the worry of being lost or Confusing or corrupting guest data and simplifying the monitoring process and capture guest data when needed.

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